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THE HEMIPTERA OF THE TEMPLETON CROCKER
EXPEDITION TO POLYNESIA IN 1934-1935¹

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In the fall of 1934 and early part of 1935 Mr. Templeton Crocker spent several months in scientific exploration with his yacht the *Zaca*, covering certain of the island groups in eastern Polynesia, embracing the Marquesas, Tuamotus, Austral and Gambier Islands, with stops at Pitcairn, Ducie and Rapa Islands, and the South American islands of Juan Fernandez and the Galapagos, on the return journey. This expedition was made primarily in the interest of the American Museum of Natural History², but Mr. Crocker very kindly turned over to the California Academy of Sciences the Hemiptera taken. Mr. Maurice Willows accompanied Mr. Crocker on the earlier part of the expedition and while with the *Zaca* did much of the insect collecting. After he was called home further insect material was taken by Mr. Crocker himself or under his immediate supervision. The material turned over to the Academy of Sciences by Mr. Crocker consisted of 276 specimens representing 44 species, of which nine were hitherto undescribed and a number of the others proved to be new to the Academy collection.

¹NOTE: Vol. XXI of the Proceedings was originally planned to contain only the reports upon the Templeton Crocker Expedition of the California Academy of Sciences in 1932. Mr. Crocker's further expeditions to the South Pacific have added so much new material to the Academy's collections that it has seemed desirable to incorporate the reports upon this later material with those of the earlier expedition. Volumes XXI and XXII have accordingly been set aside for this purpose. Consecutive numbering of the reports has been adhered to.—*Editor*.

²For an account of this expedition see *Natural History* for April, 1935.

The study of this material has proved most valuable, especially from the point of view of geographical distribution. It has served as a cross-section, as it were, of eastern Polynesia, including some small isolated islands such as Pitcairn, Ducie and Rapa. The Chilean island of Juan Fernández and the Galapagos added some important forms pertaining to the South American fauna. The Hawaiian Islands seem to have a distinct insular insect fauna, while that of the Philippines and the islands to the south are Indo-Australian. Much more material is needed from the islands of Polynesia and Micronesia before we can trace their relationships with any degree of certainty. Work such as Mr. Crocker is doing is of the greatest importance to an understanding of these relationships. Few groups of animals can compare with the insects in the opportunities they afford for the study of faunal origins. In their relationships may be found an important key to the complex geologic history of those island groups.

HETEROPTERA

Family CYDNIDAE

Geotomus pygmaeus Dallas

One specimen of this widely distributed Cydnid was taken at Taio Hae Bay, Nuku Hiva, Marquesas Islands, October 1934.

Family PENTATOMIDAE

Thyanta perditor Fabricius

Three examples of this common American insect were taken by Mr. Crocker at Conway Bay, Indefatigable Island, March 22, 1934. The insect fauna of the Galapagos Islands is strictly tropical or subtropical American. Many of the species are identical, others, especially those that have migrated to the higher interior portions of the islands, have become differentiated into species more or less distinct from their continental relations. The area of distribution of the Galapagos insect fauna apparently embraces the West Indies and Panama with a smaller representation of the Peruvian and Equadoran fauna, possibly indicating a former land connection to the north rather than to the east.

Glaucias venusta Van Duzee

One specimen of this handsome green Pentatomid was taken October 18, 1934, at Taio Hae Bay, Nuku Hiva, Marquesas Islands, by Mr. Crocker. This species was described by me in a paper on the Hemiptera taken by the Pacific Entomological Survey, published by the Bishop Museum, (Bulletin 114, Article 26, p. 314,

1935.) Of the four previously known closely allied species, *vitiensis* China inhabits the Fiji Islands, *samoanus* China, Samoan Islands, *marcidus* Cheesman the Tuamotu Islands and *sulcatus* Montrouzier New Caledonia and the Island of Woodlark. Other species are found in Malayasia and as far west as India.

Nezara viridans Stål

Conway Bay, Indefatigable Island, March 23, 1935. This insect seems to be confined to the Galapagos Islands where it is not uncommon.

Piezodorus hybneri Gmelin

South side of Rurutu Island, Austral Islands, November 28, 1934, three individuals, two of which are not fully pigmented. A widely distributed oriental species formerly known under its preoccupied name *rubrofasciatus* DeGeer.

Oechalia consocialis Boisduval

Nine specimens of this insect were taken January 23, 1935, on Ducie Island, eastern Polynesia, three on Rapa Island, December 7, 1934, and one on Raivavae Island, Austral Islands.

Platynopus melacanthus Boisduval

Raivavae (Vavitao) Island, Austral Islands, December 2, 1934. Mr. Crocker secured three examples of this "Soldier bug".

Family COREIDAE

Liorhyssus hyalinus Fabricius

South side of Rurutu Island, Austral Islands, November 28, 1934, one example. This is practically a cosmopolitan species occurring throughout the southern Palearctic and Nearctic Regions as well as in the tropics of Asia, Africa and America and in the islands of the south Pacific.

Family LYGAEIDAE

Paromius pallens Montrouzier

Rikitea, Mangareva (Gambier) Island, December 16, 1934, 13 examples; south side of Rurutu Island, November 28, 1934, and Raivavae Island, Austral Islands, December 2, 1934, one example; Pitcairn Island, December 23, 1934, one example. A species of the South Pacific Islands.

Orthaea ventralis China

Rurutu Island, south side, November 28, 1934, four adults and one nymph. Described from the Samoan Islands. These agree in every particular with Mr. China's description. They greatly extend the range of the species.

Orthaea pacifica Stål

Rikitea, Mangareva Island, December 16, 1934, nine examples; south side of Rurutu Island, November 28, 1934, eleven examples; Pitcairn Island, December 31, 1934, eleven examples. This species is more clearly marked and quite distinct from *vincta* Say, a species that seems to have found its way into the Hawaiian Islands. *O. pacifica* is widely distributed in Oceanica.

Nysius marginalis Dallas

Indefatigable Island, March 16-20, 1935, six examples. It seems to be peculiar to the Galapagos Islands.

Nysius baeckstroemi Bergroth

Mas-a-Fuella Island, Juan Fernandez Islands, Chile, January 20, 1935, two specimens. This interesting species was described by Dr. Bergroth in 1923 from material taken by the Skottsberg Expedition to these Islands (Nat. Hist. Juan Fernandez Is., III, p. 395.)

Family NABIDAE

Nabis capsiformis Germar

Rikitea, Mangareva Island, December 2, 1934, seven specimens; Rapa Island, December 7, 1934, nine examples; Rimatara Island, Austral Islands, November 25, 1934, one example; Virgin Bay, Futa Hiva, Marquesas Islands, October 8, 1934; Raivavae Island, December 2, 1934, seven examples; Easter Island, January 15, 1935, six examples; Pitcairn Island, December 31, 1934, twenty-eight examples. This cosmopolitan species seems to have been common on the islands of the south Pacific visited by Mr. Crocker. Many immature individuals were taken with the adults. It inhabits the more open coastal areas of the islands.

Nabis punctipennis Blanchard

Mas-a-Fuella Island, Juan Fernandez Islands, Chile, January 30, 1935, two adults and two young. This insect occurs also in continental Chile and in Argentina.

Family REDUVIIDAE

Ploiaria dohrni Signoret

Juan Fernandez Islands, Chile, January 31, 1935, one example.

Repipta annulipes Barber

Indefatigable Island, March 22, 1935, one example. This individual was taken at Conway Bay by Mr. Crocker. Mr. Willows took another on the same island on Mr. Crocker's 1932 expedition.

Family MIRIDAE

Creontiades fuscus Barber

Indefatigable Island, March 22, 1935, five examples from Conway Bay. Apparently precinctive. A very distinct species.

Creontiades insularis Poppius

South side of Rurutu Island, Austral Islands, November 28, 1934, two females; Rikitea, Mangareva Island, December 16, 1934, one female; Pitcairn Island, December 31, 1934, six males.

The males are more deeply colored than the females and have the clavus more or less infuscated. Other specimens were taken at Virgin Bay, Futa Hiva, Marquesas Islands, October 21, 1934, seven examples; Taipa Bay, Nuku Hiva, Marquesas Islands, October 8, 1934, three examples.

This fine series of nineteen specimens is of much interest from the distributional standpoint. Poppius described this species from a single damaged female from New Caledonia. The present series extends its range eastward through the Austral, Mangareva and Marquesas groups to Pitcairn. Mr. Crocker did not secure this species on Easter Island, so it is possible that Pitcairn Island represents about the eastern extension of its range. Toward the west it is found as far as the Solomons where he secured specimens on his expedition of 1933. On the expedition of the California Academy of Sciences to the Gulf of California in 1921 I found an allied American species, *C. femoralis* Van Duzee, on *Salicornia*, a salt marsh plant growing along the shores of a number of the islands in the Gulf of California, and it is not unlikely that *C. insularis* has similar habits which may account for its wide distribution.

Creontiades willowsi Van Duzee

Indefatigable Island, March 28, 1934, one female. This specimen is somewhat immature and does not show the point at base of the hind tibiae, but it has the same exceptionally prominent tylus, not

found in *insularis*, and wants the obscure dark irrorations of that species. *C. willowsi* can readily be distinguished from *femoralis* by the less protuberant front. The black point at the base of the hind tibiae is present in all fully pigmented examples of *femoralis* known to me.

The references for these species are:

insularis Poppius, Of. Finska Vet.-Forh., LIII, Afd. A, No. 3, p. 1, 1911.

femoralis Van Duzee, Trans. San Diego Soc. Nat. Hist., II, p. 19, 1914.

willowsi Van Duzee, Proc. Calif. Acad. Sci., (Ser. 4), XXI, p. 28, 1933.

Engytatus geniculatus Reuter

Academy Bay, Indefatigable Island, March 24, 1935, four males; Chinche Island, Peru, one male. This widely distributed American insect has recently been introduced into the Hawaiian Islands where it is doing some damage to the tomato crop.

Poeciloscytus insularis Van Duzee, new species

Aspect of *Lygus rubicundus* Fallén. Ovate, castaneous brown, closely pale pubescent, elytra indistinctly mottled or irrorate with pale spots on which the vestiture is closer; apex of corium and inner margin of clavus more or less red, the tip of the cuneus black; membrane maculate; tibial spines black. Length 4 mm.

Head two-thirds as wide as humeral width of pronotum, eyes large, vertical, their height, as viewed from the side, twice their width, overlapping the anterior pronotal angles; face broad, smooth, the clypeus and cheeks tumidly convex. Antennae long, slender, reaching to tip of cuneus; segments as 11:34:20:11. Rostrum attaining apex of hind coxae, segment I only thickened. Pronotum closely, obsoletely punctured, hind margins evenly feebly arcuate, not at all emarginate medianly. Scutellum scarcely broader than long, somewhat convex. Elytra obsoletely chagreened, the costa scarcely arcuate.

Color castaneous brown becoming more yellowish on the head, pronotum anteriorly, apex of scutellum, antennae, legs and beneath; costal area and much of cuneus paler and subhyaline; extreme tip of antennals I, II, and III and all of IV embrowned; apex of corium and base of cuneus more or less sanguineous, extreme tip of the latter blackish; tip of rostrum, tibial spines and a dot at their base black; a cloud on the metasternum and sometimes one on the metapleurae infuscated. Vestiture pale, rather long and dense on the elytra where it is segregated into paler maculations. Membrane faintly smoky hyaline except the apex of the areoles and two large spots beyond, veins pale; venter sometimes showing a mottling of sanguineous; femora with a broad area of brownish or sanguineous, of variable extent, before their apex.

Holotype: female, No. 4153, Mus. Calif. Acad. Sci., Ent., and six female *paratypes*, taken by Mr. Crocker on Pitcairn Island, December 31, 1934. This insect has much the aspect of *Lygus rubicundus* but the eyes are broader, the pronotum is not distinctly punctate and the antennae are much longer and more slender. It is now placed provisionally in *Poeciloscytus*. A single male and

one female labeled "south side of Rurutu Island, November 28, 1934" probably belong here but more material is needed to decide this point.

Poeciloscytus modestus (Blanchard)

Mas-a-Fuella Island, Juan Fernandez Islands, January 30, 1935, one male, two females. The females agree well with the Blanchard description except that the scutellum is transversely rugose rather than punctate and the punctation of the pronotum is very close and fine, giving a shagreened effect. One female is 4 mm. long; the head above, pronotum and sides of the scutellum are deep piceous, almost black; the slender margin of the vertex, a median longitudinal line on the vertex, sides of the clypeus and the cheeks and a longitudinal vitta on anterior lobe of the pronotum, not attaining the anterior margin, yellowish; base of antennal I, and base and apex of II piceous; cuneus red, a basal lunule and the narrow inner edge and tip whitish, the extreme inner angle black; membrane fuscous, veins whitish; legs pale, the hind femora piceous, tibial spines and apex of tarsi black; anterior and intermediate femora and coxae marked with brown. The second female differs only in being smaller and in wanting the pale basal edge to the vertex, and the antennae are a shade darker. The male is deep black instead of piceous, without the pale marks on the head and pronotum, and only the tip of the scutellum is yellow. In the larger female the slender hind edge of the pronotum is pale. These differences are not greater than we find in our related North American species and I have little doubt but the present material pertains to Blanchard's species.

Poeciloscytus sp.

Conway Bay, Indefatigable Island, March 16, 1935, one specimen that I have not been able to identify to my satisfaction.

Mr. Barber in his paper on the Heteroptera of the Galapagos Islands (Medd. Zool. Mus., Oslo, No. 42, p. 288, 1934) places my *Poeciloscytus vegatus* in the genus *Polymerus*, evidently following Poppius and some others in uniting these genera. I still consider them distinct. The short rostrum, opaque surface and general habitus, it seems to me, are quite sufficient for generic distinction. There may be annectant species but so there are between many of our accepted genera. I can see nothing to be gained in uniting them.

Europiella mella Van Duzee, new species

Minute, ovate, croceus; elytra honey-yellow, membrane smoky with the areoles hyaline, beneath pale yellowish with the pleurae croceous; impunctate, clothed with deciduous scale-like hairs. Length 2 mm.

Head vertical, clypeus prominent below, its basal suture distinct, placed above the line of the antennal scrobes. Antennae rather stout; segment I scarcely attaining apex of clypeus; II as long as head and pronotum together, a little thicker apically; III and IV together a little shorter than II. Prosternal xyphus sub-tuberculate. Rostrum attaining intermediate coxae. Pronotum trapezoidal, nearly twice as wide as long, humeri sharply rounded. Scutellum scarcely wider than long. Elytra broad, costa feebly arcuate, disk of corium subhyaline; membranous veins concolorous.

Color more or less croceous; legs and abdomen pale yellowish; the elytra honey-yellow; membrane smoky, the areoles hyaline; femora unspotted, sometimes somewhat infuscated; tibial bristles, extreme apex of tibiae and the tarsal claws black; antennae dusky yellowish.

Holotype: male No. 4154, and *allotype*, female No. 4155, Mus. Calif. Acad. Sci., Ent., secured by Mr. Crocker at **Conway Bay, Indefatigable Island**, March 16 (type) and 22nd, 1935. This is a very small ruddy species of much interest in extending the distribution of this genus of inconspicuous mirids well to the South.

Family GERRIDAE

Halobates robustus Barber

Academy Bay, Indefatigable Island, March 24, 1935, two examples. Mr. Barber's types were taken by the Williams Galapagos Expedition at Conway Bay, on the same island.

HOMOPTERA

Family CICADIDAE

Tettigades chilensis Amyot and Serville

Southern Chile. Mr. Crocker brought back four specimens of this interesting species that were presented to him by a Chilean entomologist. They made a valued addition to the Academy collection.

Family FULGORIDAE

Oliarus galapagensis Van Duzee

This species was founded upon a unique female secured by Mr. Crocker on his 1932 expedition. The present material contains two males, taken at Conway Bay, Indefatigable Island, March 16, 1935, that make possible the definite placing of the species. It is very close to *franciscanus* Stål, a species that is common throughout California. However it is definitely darker in color with the elytral venation heavier, the vertex is more produced before the eyes and the basal segment of the hind tarsi is longer.

The genital characters of the male are somewhat similar but the median tooth of the pygofer is shorter and the plates are longer with their rounded apex much broader.

***Nymphocixia unipunctata* Van Duzee**

This interesting fulgorid was described by me (Proc. Calif. Acad. Sci., Ser. 4, XII, p. 189, 1923) from a series taken on Espiritu Santo Island, Gulf of California. I beat them from Mangroves (*Avicennia nitida*) that were growing along the shore and were partially submerged by the high tides. In the Galapagos another species of *Avicennia* (*officinalis*) grows along the shores of many of the islands and it is quite possible that it was from these that Mr. Crocker secured the present material. The records of the Crocker material are: Tagus Cove, Albemarle Island, March 10, 1935, 10 examples; Elizabeth Bay, Albemarle Island, March 9, 1935, and Conway Bay, Indefatigable Island, March 23, 1935, one each.

***Philatis cinerea* Osborn**

Tower Island, Galapagos Islands, March 25, 1935, seven examples. For description see Zoologica, VI, p. 78, 1924.

This genus was founded by Stål in 1862 (Rio Janeiro Hemip., II, p. 68) with *Mycterodus productus* Stål as type.

***Philatis productus* Stål**

Conway Bay, March 16, and Academy Bay, March 24, 1935, Indefatigable Island, three examples.

***Philatis major* Osborn**

With the preceding species, eleven examples.

***Euthiscia crockeri* Van Duzee, new species**

Size and aspect of *tuberculata* Van Duzee, from Lower California, but without the six dorsal tubercles and with less expanded elytra. Length 3.5-4 mm.

Head produced, horizontal, its length is to its width between the eyes as 14:21; vertex flat, median line carinate basally, its surface feebly transversely rugose; sides acute, slightly sinuate before the eyes. Front smooth, sparsely clothed with short hairs, a median carina feebly indicated, the produced apex subterete, beneath with obscure transverse rugae; sides parallel from eyes to antennae. Rostrum attaining hind coxae. Pronotum acutely produced to the middle line of the eyes, slightly broadly excavated behind. Scutellum excavated medianly and at basal angles, leaving a slightly oblique carina and the apex elevated; the median

line impressed. Elytra ovate, one fourth longer than wide, sinuate dorsally; a median bulla at basal fourth; costal area narrower than in *tuberculata*; longitudinal veins heavy, the reticulations weaker; inner area of corium with four whitish transverse veins. Tibiae unarmed. Last ventral segment of female with a semicircular sinus. In *tuberculata* this sinus is broad and shallow with the edge of the fundus thickened medianly, while in *signata*, the type species, the hind margin is produced in a large bifid tooth.

Color yellowish brown varied with darker, the elytra more fuscous toward the apex; front and legs more brownish.

Holotype: female, No. 4156, Mus. Calif. Acad. Sci., Ent., and one female *paratype*, secured by Mr. Crocker at **Academy Bay, Indefatigable Island**, March 24, 1935. It affords me pleasure to name this interesting species after its discoverer.

I took *tuberculata* on *Sideroxylon*, but as no closely related plant has been reported from the Galapagos Islands it is quite possible that the record from the islands of the Gulf of California may represent an accidental capture of a specimen that had gotten on *Sideroxylon* from some adjacent plant. As genus *Euthiscia* is virtually wingless it could not have flown there.

Tylana intrusa Melichar

Raivavae Island, Austral Islands, December 2, 1934, two females; Pitcairn Island, December 3, 1934, one male. These agree in all essential particulars with Melichar's description, but seem to be less highly colored. In the females the elytral veins are concolorous, in the male blackish; the brown marking either side of the pale discal spot of the elytra is feebly indicated in the females and is almost obsolete in the male, while in both sexes the black punctures on the face are absent, or are indicated only by scattering fuscous punctures on the lateral compartments of the front. These differences are in degree of pigmentation and are hardly of specific value. The distribution shown here is not unusual. The type locality of *intrusa* is about as far from the Austral Islands as those are from Pitcairn where Mr. Crocker took the male. It evidently is widely distributed in Polynesia.

Sogata placita Van Duzee, new species

Aspect of *furcifer* Horv. (*albolineosa* Fowler); black with a broad white median vitta on vertex, pro- and mesonotum, which is slenderly continued on the claval commissure; Legs pale. Length to tip of elytra 3 mm.

Macropterous male: vertex one fifth longer than its basal width, very slightly wider at base, extending one third its length beyond the eyes; carinae rather low and flat over the apex; front narrow, sides feebly arcuate from near the base; median carina of front and clypeus low and heavy, pale. Basal segment of antennae longer than wide, II about twice the length of I and much thicker. Pronotum a

third wider than head; median carina strong; lateral straight, nearly attaining the feebly emarginate hind margin well laterad of the scutellar carinae. Mesonotum tricarinate, the lateral carinae but slightly divergent posteriorly. Elytra exceeding the abdomen by one third their length; veins distinctly granulate. Hind tibiae bispinose, one basal the other medial; spur cultrate, moderately tectiform, its lower margin closely set with minute black-tipped teeth. Male stiles slender, approximate at base, but very feebly curved toward their base, nearly attaining the anal tube.

Color blackish fuscous; a broad dorsal vitta covering the vertex and median area of pro- and mesonotum between the carinae, a slender sutural line on basal two thirds of the clavus and the hind legs, ivory white; anterior and intermediate legs, rostrum, median carina of the front and clypeus, antennal II and extreme tip of I pale ochraceous, the metapleura in part white. Elytra with a whitish area covering most of the first three apical cells and the stigma.

Holotype: male, No. 4157, Mus. Calif. Acad. Sci., Ent., taken by Mr. Crocker on **Rapa Island, Austral Islands**, December 7, 1934. One male *paratype* was secured by Mr. Crocker on **Pitcairn Island**, December 3, 1934.

I am placing this insect in genus *Sogata* on account of its produced vertex and its close relationship with *furcifer* (= *albolineosa* Fowler). I wish to call attention here to the fact that Mr. Muir followed Kirkaldy in refusing to accept the statement by Stål that his genus *Liburnia* was the genus "*Delphax* of authors". Its type is not one of the species included by Stål in his Hemiptera Africana (IV, p. 179), a work devoted to the African fauna. I have gone fully into this matter in the Bulletin of the Buffalo Society of Natural Sciences, X, p. 504, 1912, and will not repeat it here. Whether we should sink *Liburnia* as a synonym of *Delphacodes* Fieber is another matter, but as Fieber sank his *Delphacodes* as a synonym of *Liburnia* in 1872 in his Catalogue, and again in his monograph of 1879, we may feel fairly certain that Stål's name had priority. The entomologists of those days were not more anxious, as an act of courtesy, to sink their own genera to one published later, than they are today.

Liburnia spp.

In this material there are females of three species of *Liburnia* and a male of another but their condition will not allow of definite determination. Mr. Crocker also secured a female of another large and interesting delphacid at Virgin Bay, Fatu Hiva, October 21, 1934, but I have found it difficult to place it without more material.

Family CERCOPIDAE

Lallemandia fenestrata rapana Lallemand

Lallemand, Ann. Mag. Nat. Hist., Ser. 10, I, p. 634, 1928

China, Bishop Mus., Bul. 113, p. 47, 1935

Rapa Island, Austral Islands, December 7, 1934, 11 males, 1 female, the latter somewhat teneral.

Mr. W. E. China very properly establishes a new genus for *Clovia fenestrata* (Fabricius) and its allied forms from Polynesia. Some of the present specimens have the black basal vitta on the vertex weakened or almost interrupted at the center between the ocelli, while one has it continued as a narrow median line to the transverse suture. The anterior edge may have a slender fuscous or black line from the eyes to the ocelli or it may be wanting.

Lallemandia crockeri Van Duzee, new species

Aspect of *fenestrata*, but apparently specifically distinct; elytra mostly coriaceous, the nervures obsolete in the black areas, nearly so in the pale, propleurae produced in a ligulate process each side of the anterior acetabulae; above black, most of the vertex, an irregular median band on the pronotum, scutellum and clavus ochre yellow, as is the lower surface; costal margin pale. Length 9 mm to tip of elytra.

Vertex flat, longer than in *fenestrata*, longer than the width between the eyes (28:21); distance between the ocelli greater than that to the eyes; carinate sides of the pronotum two-thirds the greatest length of the eyes; front more convexly prominent than in *fenestrata*; elytral nervures obsolete or hardly traceable on the whitish subapical costal spot.

Color pale ochraceous; sometimes with a slender marginal line above the antennal scrobes and a basal spot of variable size either side of the ocelli, black; pronotum, except a median vitta widened posteriorly, and the slender edges of the scutellum, black; elytra black medianly, the commissural margin with a broad pale yellowish vitta to the end of the clavus where it is slightly produced as a whitish mark on the corium, the commissural nervure slenderly black; costal margin broadly pale, connecting with an oval whitish subapical costal spot about as in *fenestrata rapana*; abdomen black, the segments edged with pale; apex of rostrum and the tarsal claws black; metapleura more or less infuscated; wings faintly smoky, especially apically; sides of pronotum inferiorly black behind the eyes. Whole upper surface closely punctate and clothed with short appressed golden hairs.

Holotype: male, No. 4158, and *allotype*, female, No. 4159, Mus. Calif. Acad. Sci., Ent., secured by Mr. Crocker at **Raivavae Island, Austral Islands**, December 2, 1934, and one male *paratype*, same date. This island sometimes is called Vavitao Island. This is a most interesting addition to the Polynesian cercopid fauna. The specific name is given in recognition of the important contributions Mr. Crocker has made to our knowledge of the insect fauna of the islands of the south Pacific.

Family CICADELLIDAE

Agallia mera Van Duzee, new species

Size and aspect of *sinuata* Mulsant and Rey, but with the veins of the corium pale and obsolescent; creamy white; two large spots on the vertex and two on the pronotum black; disk of the elytra milky with two vittae on the clavus and the claval suture fuscous. Length 4 mm.

Female: head obviously wider than the pronotum; anterior and posterior margins parallel. Pronotum almost twice as wide as long, very minutely shagreened; hind margin feebly emarginate. Scutellum short as in *sinuata*, the incised line but feebly impressed. Elytra nearly three times as long as their combined width when folded. Last ventral segment broadly feebly emarginate, the hind edge broadly lobed either side, oviduct much exceeding the pygofer.

Color pale creamy yellowish with a slightly dusky median cloud on the vertex and apical two thirds of pronotum; two large round dots on vertex, wider apart than are the ocelli, and a pair of larger ones near basal margin of pronotum; scutellum immaculate; clavus with adjacent margin and base of corium milky opaque, the rest of the corium hyaline; two longitudinal vittae on the clavus and a narrower one on the corium near the claval suture ferruginous brown; beneath with the tergum and legs uniformly pale, only the front tinged with cream yellow; tarsal claws black; ovipositor pale fulvescent.

Holotype: a unique female, No. 4160, Mus. Calif. Acad. Sci. Ent., taken by Mr. Crocker at **Conway Bay, Indefatigable Island**, Galapagos Islands, March 15, 1935. It is a little larger and paler than the European *sinuata* and wants the black tergum, the black dot below the eye, and the heavy fuscous corial veins of that species.

This insect runs to genus *Agallia* (sensu strict.) in the Oman key of 1933, but, wanting the male, it is impossible to place it more accurately. However a careful reading of the description of all the species not known to me, with the help of Mr. Oman's excellent figures, convinces me that it is new. The above comparison with *sinuata* will help to place it. Among our American species it seems to be nearest to *modesta* Osborn & Ball.

Platymetopius retusus Van Duzee, new species

Short, stout, with a blunt vertex, dull fulvous brown with a large fuscous mark at base and a smaller one at apex of the clavus, apex of the corium with a blackish cloud. Length 3.5 mm.

Male: head scarcely as wide as pronotum; vertex about as long as its width between the eyes at narrowest point; apex rounded-subangulate, its median length but little more than that next the eye (7:5); median impressed line distinct; front strongly convex, subparallel, a little widened at base and narrowed from basal angle of lorae to clypeus; clypeus nearly parallel, outer margin of cheeks but slightly sinuate below the eyes. Pronotum short, its width twice its length, the humeral angles obviously alate, base nearly rectilinear. Scutellum about one-half as long as its basal width. Elytra short, their width singly nearly one third their length;

about ten oblique veins in costal area; two cross veins in cell. Valve long, rounded at apex; plates exceeding valve by about the length of the valve, their apex obtuse, their sides scarcely sinuate and closely armed with stout spines.

Color dull fulvous brown, paler on base and apex of vertex and on inner angle and part of costal area; face minutely irrorate with darker brown, pale at base and apex; vertex pale at apex and on basal margin, incised median line dark; pronotum darker anteriorly, median line and lateral angles paler; scutellum pale yellow, the base interruptedly fuscous; elytra with a large fuscous commissural area broken by a pale band before the apex and enclosing a round pale spot a little before the pale band; corium faintly vermiculate; costal reflexed veins heavy; inner apical areole pale, carrying a sagitate fuscous mark at apex, the adjoining areole fuscous with a large white central area, third areole fuscous with a round white dot at base and a yellowish marginal line; fourth areole soiled white next the stigmal area, the three anteapical areoles each with a round white dot at apex; appendix with a black point at tip of clavus; beneath fuscous, the connexivum, genital segments and legs pale.

Holotype: No. 4161, Mus. Calif. Acad. Sci. Ent., a unique male, taken by Mr. Crocker at **Conway Bay, Indefatigable Island**, March 16, 1935. This species might be placed in Ball's subgenus *Convelinus* but it wants the "shark's mouth" pale vitta on base of front. It has the shortest vertex of any *Platymetopius* known to me.

***Jassus infestus* Van Duzee, new species**

Apparently allied to *galapagoensis* but differing in proportions of head and in genitalic characters. Length 8 mm.

Female: vertex as long as its width at inner angle of eye; median line and a point either side dusky; anteriorly broadly rounded; ocelli a little farther apart than their distance from the eyes (5:3); front above the antennae four times as wide as the tempora (14:3), twice as wide as at the ocelli, the median carina nearly obsolete; clypeus nearly one half longer than its apical width, abruptly expanded at apex of lorae, its apical margin sinuate; cheeks longitudinally wrinkled exterior to line of the lorae. Pronotum but little longer than the superior aspect of the head, feebly sinuate behind, granulate to near the hind margin. Apical lamina on inner margin of hind femora about half as wide as long, the basal segment of its tarsi a little longer than the apical. Last ventral segment strongly produced, extending about one third its length beyond the lateral angles, and emarginate-sinuate at median line.

Color pale yellowish; a brown line on base of vertex, slender margin of front below the antennae and of the base of the clypeus, black. Pronotum black above, yellow inferiorly, with a black spot against the eye and a broken croceous vitta behind base of vertex, the hind margin touched with the same color; scutellum croceous, the lateral angles and two median dots black; elytra dusky hyaline with the veins and a broad longitudinal vitta blackish; beneath pale, sternum, disk of the pectoral pieces and of the oviduct and the sides of the pygofer piceous; tips of the tibiae and tarsi rufo-piceous.

Holotype: a unique female, No. 4162, Mus. Calif. Acad. Sci. Ent., was secured by Mr. Crocker at **Academy Bay, Indefatigable Island**, March 24, 1935.

Professor Osborn has described *Jassus galapagoensis* from the opposite side of the same island but he says that the last ventral

segment of the female is scarcely produced posteriorly and but feebly sinuate while the present species has this segment strongly produced and deeply notched on the median line. It also differs in proportions and color. It seems best to consider it a distinct species.

Eugnathodus juvenus Van Duzee, new species

Closely allied to *hebe* Kirkaldy, paler, with the tergum scarcely touched with black and with different male genital characters. Length 3 mm. to tip of elytra.

Vertex evenly rounded before, with the anterior and posterior margins parallel; front flatter and broader below than in *hebe*. Valve of male longer and more obtuse at apex than in *hebe*, plates broader, but little narrowed to the obtusely rounded apex. In *hebe* the plates are more narrowed to their apex where they are produced in finger-like processes about as long as the sutural margin of the plates are produced beyond the valve; the sides also are armed with longer and stouter spines in *hebe*, in both species these are five in number.

Color very pale yellow, the elytra almost hyaline with the veins yellowish; wings more yellowish hyaline with deeper yellow veins, the apex slightly infuscated in the *Mangareva* female.

Holotype: male No. 4163, Mus. Calif. Acad. Sci. Ent., secured by Mr. Crocker on the south side of **Rurutu Island, Austral Islands**, November 28, 1934. One female taken December 7, 1934, on **Rapa Island** I designate as a *paratype*. It has the last ventral segment truncate but marked with a median triangular somewhat infuscated area. Another female taken on Rikitea, Mangareva Island, December 16, 1934, is a little larger with the dorsal surface of the abdomen touched with black at the base.

My comparison with *hebe* is made from a topotype from the Fiji Islands received by me from Mr. Kirkaldy at the time he published the description, and three others taken by Mr. Koebele at the same time and place, and presented by Mr. Muir with his determination. Professor Osborn's figure of the male genital plate does not show the very distinct spine-like apices and the long marginal setae and may represent a distinct species. The male plates of *juvenus* are shaped about as shown in Professor Osborn's figure of *areolata*, but the species are quite distinct.

In the Ohio Jl. Sci., xxxiii, p. 55, 1933, Mr. DeLong states that he has examined the type of my *Gnathodus abdominalis* and found it to be the same as my *Gnathodus impictus* studied by me at the same time and published on the same page. I well remember my work on these species. Prof. Baker's specimens on which he founded his genus *Eugnathodus* were determined by me and were compared with my type of *abdominalis*. There never before has been any question as to the identity of this species and it is very evident that the type

has become mixed, either in shipment or at some later date. My description of *abdominalis* calls for a species with a brown tergum and three fulvous lines on the pronotum and scutellum, also the color of the elytra and wings must differ. At that time I was much too familiar with this group of Jassids to describe the same species as two. The synonymy will stand as follows:

Eugnathodus Baker, Invertebrata Pacifica, I, p. 1, 1903.

Agellus DeLong and Davidson, Ohio Jl. Sci., xxxiii, p. 210, 1933.

Eugnathodus abdominalis (Van Duzee), Can. Ent., xxiv, p. 113, 1892 (*Gnathodus*).

neglectus DeLong and Davidson, Ohio Jl. Sci., xxxiii, p. 55, 1933.

Family CHERMIDAE

Mesohomotoma hibisci Froggatt

Rapa, Austral Islands, December 7, 1934, seven examples; south side of Rurutu, Australs, November 28, 1934, seven examples; Raivavae, Australs, December 2, 1934, one example; Rikitea Island, Mangarevas, December 16, 1934, one example.

Mr. Koebele took this species on New Caledonia and the Fiji Islands and Aulmann reports it from Queensland, Australia; it seems to be widely distributed in Oceanica. Froggatt reports it as very abundant on *Hibiscus tiliaceus*.